**REMARKS**

The Official Action objects to dependent Claims 2, 9, 21, 26 and 43 for lacking antecedent basis or otherwise being inconsistent. As noted below, Claims 2 and 21 have been cancelled and the objection thereto is therefore moot. As to the other claims, dependent Claims 9, 26 and 43 have been amended to consistently reference "at least one figure-sheet set specification", thereby overcoming the objection to the claims.

The Official Action also rejected Claims 1-55 under 35 U.S.C. § 103(a) as being unpatenable over an article entitled "Graphics Recognition for a Large-Scale Airplane Information System" (referenced by the Official Action as *Baum et al.*) in view of an article entitled "Interpretation of Technical Illustrations for Airplane Maintenance and Operations Applications" (referenced by the Official Action as *Boose et al.*). As described below, independent Claims 1, 20 and 38 have been amended to further patenably distinguish the claimed invention from the cited references, taken either individually or in combination. As a result of the amendments to the independent claims, dependent Claims 2, 13, 21, 30, 47 and 55 have been cancelled and dependent Claims 48-50 have been amended to update their dependency accordingly. Additionally, new dependent Claims 56-61 have been added to highlight other unique aspects of the claimed invention. Based on the foregoing amendments and the following remarks, reconsideration of the present application and allowance of the amended set of claims are respectfully requested.

As now amended, independent Claim 1 describes a method for automatically generating a subset of components from a plurality of components. The method of independent Claim 1 receives a request to generate a subset of components, accesses connectivity data including information regarding the plurality of components and the connections among the plurality of components and automatically selects portions of the connectivity data that satisfy the request to generate the subset of components. As now amended, independent Claim 1 further defines the method to include "generating a diagram based upon the automatically selected portions of the

connectivity data of only the subset of components without other components from the plurality of components that are not included in the subset of components; and displaying a diagram of only the subset of components without other components from the plurality of components that are not included in the subset of components." No new matter is added by this amendment since the display of only the subset of components is disclosed by the present application as shown, for example, in Figures 3, 5 and 6 in which only the subset of components is displayed without the display of other components that are not included in the subset of components. Additionally, page 16, lines 17-18 and 32-33 of the present application describe that the resulting diagram represents only the subset of components, that is, the high-level components in one instance and the functional-level components in the other instance.

Notably, independent Claim 1 now recites that the diagram of the subset of components is generated based upon the automatically selected portions of the connectivity data. Thus, the method of amended independent Claim 1 generates the diagram from the connectivity data, that is, information regarding the components and the connections among the components, such as a database listing the various components and their respective connection(s), as opposed to working directly from a diagram, such as a diagram of a larger system, to generate the diagram of the subset of components. Also, by displaying only the subset of components that has been automatically selected based upon the initial request and the connectivity data, the method of amended independent Claim 1 provides a user with a more clear and less cluttered view of those components which are of interest, thereby permitting the user to review the subset of components and their interconnectivity more quickly, efficiently and with less chance of error access by avoiding the confusion or distraction introduced by other components.

With reference to the cited articles, the Official Action contends that the highlighted electrical circuit depicted in Figure 3 of the *Baum et al.* corresponds to the subset of components that are automatically selected by the method of independent Claim 1 in response to the request and pursuant to the connectivity data. While *Baum et al.* does disclose circuit tracing in which an electrical circuit is highlighted within the display, *Baum et al.* does not teach or suggest "generating a diagram based upon the automatically selected portions of the connectivity data of

only the subset of components without other components from the plurality of components that are not included in the subset of components". Instead, *Baum et al.* works from a larger system diagram to trace the electrical circuit and does not generate the electrical trace based upon connectivity data, let alone an automatically selected portion of the connectivity data as set forth by amended independent Claim 1.

Additionally, *Baum et al.* does not teach or suggest "displaying the diagram of only the subset of components without other components from the plurality of components that are not included in the subset of components", as now set forth by amended independent Claim 1. Instead, the highlighted circuit depicted in the wiring diagram of Figure 3 of *Baum et al.* is only one portion of the display, which also includes a number of other components that are not components of the highlighted circuit and, based upon the correspondence drawn by the Official Action between the highlighted circuit and the subset of components of the claimed invention, are not included in the subset of components. As such, *Baum et al.* discloses the display of a wiring diagram that includes not only a highlighted circuit, but also a number of other components that are not included in the highlighted circuit. Thus, *Baum et al.* fails to teach or suggest either "generating a diagram based upon the automatically selected portions of the connectivity data of only the subset of components without other components from the plurality of components that are not included in the subset of components" or "displaying the diagram of only the subset of components without other components from the plurality of components that are not included in the subset of components", as now recited by amended independent Claim 1.

*Boose et al.* also fails to teach or suggest "generating a diagram based upon the automatically selected portions of the connectivity data of only the subset of components without other components from the plurality of components that are not included in the subset of components; and displaying the diagram of only the subset of components without other components from the plurality of components that are not included in the subset of components", as now recited by amended independent Claim 1. Indeed, *Boose et al.* is not cited by the Official Action for this proposition and is, instead, cited for other purposes. It is noted, however, that similar to *Baum et al.*, *Boose et al.* discloses the display of a highlighted electrical circuit along

with the concurrent display of a number of other components that are not elements of the highlighted electrical circuit. Since *Boose et al.* also works from a larger system diagram to trace the electrical circuit, *Boose et al.* also fails to teach or suggest "generating a diagram based upon the automatically selected portions of the connectivity data of only the subset of components without other components from the plurality of components that are not included in the subset of components", as now recited by amended independent Claim 1. Likewise, *Boose et al.* fails to teach or suggest "displaying the diagram of only the subset of components without other components from the plurality of components that are not included in the subset of components", as also now recited by amended independent Claim 1. Since both references fail to teach or suggest at least the added recitations of "generating a diagram based upon the automatically selected portions of the connectivity data of only the subset of components without other components from the plurality of components that are not included in the subset of components; and displaying the diagram of only the subset of components", it is submitted that any combination of the cited references would also necessarily fail to teach or suggest at least these recitations of amended independent Claim 1.

Independent Claims 20 and 38 have been amended to include similar recitations to those of amended independent Claim 1. Accordingly, amended independent Claims 20 and 38 are also patentably distinct form the cited references, taken either individually or in combination, for at least the same reasons described above in conjunction with amended independent Claim 1. As such, the rejection of independent Claims 1, 20 and 38, as amended, is therefore respectfully submitted to have been overcome.

Since the dependent claims depend from and therefore include the recitations of a respective independent claim, the rejections of the dependent claims are also overcome for at least the same reasons described above in conjunction with the respective independent claims. However, a number of the dependent claims include additional recitations that further patenably distinguish the claimed invention from the cited references, taken either individually or in combination.

For example, dependent Claims 10, 27, 44 and 50 further recite the removal of at least one component from the automatically selected portions of the connectivity data that satisfy the request for the subset of components followed by the direct connection of the components that were previously attached to a removed component prior to generating the diagram of the subset of components. The Official Action does not cite to either *Baum et al.* or *Boose et al.* in conjunction with dependent Claims 10, 27, 44 and 50, but, instead asserts that "it would have been obvious to an artisan of ordinary skill, at the time of the invention, to *update* the schematic wiring diagrams when, during the course of maintenance and repair, a part has been removed." Dependent Claims 10, 27, 44 and 50 are not directed to the instance in which an actual part has been physically removed during maintenance and repair as suggested by the Official Action. Instead, dependent Claims 10, 27, 44 and 50 are directed to instances in which a subset of components is initially generated that satisfy the request based upon the connectivity date and the user, for example, then removes one or more components from the subset of components which will be displayed (thereby removing the displayed representation of the component but not the physical component itself). As such, the user merely further simplifies the displayed subset by removing one or more components that otherwise would be included in the subset as a result of the request and the connectivity data. By simplifying the display of the subset of components in this fashion, the component is not actually removed from the physical circuit, but the display of the circuit is simply modified to no longer illustrate the removed component.

The distinction between the removal of a component from a displayed subset of components in comparison to the physical removal of an actual component as suggested by the Official Action is taken into account by dependent Claims 10, 27, 44 and 50 which recite the removal of a component from the automatically selected portion of the connectivity data that <u>satisfy the request for the subset of components</u>. If the component had been physically removed form the circuit as suggested by the Official Action, the automatically selected portions of the connectivity data would not have included the removed component since the removed component would not have been connected and, as such, would not have satisfied the request for

the subset of components, which is a criteria defined by dependent Claims 10, 27, 44 and 50 with regard to the component that is removed from the displayed subset of components.

Additionally, dependent Claims 11, 28 and 45 further define the request for a subset of components to include at least one of "a maximum number of components and a maximum number of connections" with the subset of components that is subsequently identified satisfying these constraints. The Official Action does not cite either *Baum et al.* or *Boose et al.*, but instead states that "it would have been obvious to an artisan of ordinary skill, at the time of the invention, to provide for boundary conditions in the search for components, because if a search was failing the system need a mechanism to halt an endless search that will never produce a termination condition." By specifying a maximum number of components and/or the maximum number of connections in the request for a subset of components, dependent Claims 11, 28 and 45 permit the subset of components be defined in such a way as to be manageable and readily reviewable by the user. To the contrary, the rationale that even in the absence of any relevant disclosure by *Baum et al.* or *Boose et al.* it would have been obvious for a request for a subset of components to include the maximum number of components and/or the maximum number of connections as set forth by dependent Claims 11, 28 and 45 is misplaced in that the subset of components as requested by dependent Claims 11, 28 and 45 is not boundless, but is bounded in various manners as defined by the connectivity data. As such, there is not otherwise a necessity for bounding the request and, indeed, it would appear as though instances in which the request produced an endless search would be of interest since it may indicate error in the circuit design or layout.

Dependent Claims 12, 29 and 46 recite that the request for subset of components requests that the subset of components include a path that is located at a predefined distance away from a respective component. The Official Action contends that *Baum et al.* reads upon dependent Claims 12, 29 and 46 as a result of the distance between components depicted in Figure 5. While Figure 5 does depict various components spaced from one another by various distances, neither *Baum et al.* nor *Boose et al.* teaches or suggests that a request for the display of a subset of components requests that the subset of components includes a path located a predefined distance

away from a respective component as set forth by dependent Claims 12, 29 and 46. Indeed, there is no discussion by either of the cited references as to any path that is within a predefined distance of a component.

Dependent Claims 14, 32 and 49 are directed to the addition of a component to a subset of components after the diagram of the subset of components has been generated, followed by the regeneration of a diagram including the added component. Similarly, dependent Claims 15, 33 and 50 are directed to the removal of a component to a subset of components after the diagram of the subset of components has been generated, followed by the regeneration of a diagram without the removed component. Among other applications, such re-generation of a diagram following the addition or deletion of a component can be useful in instances in which an airline has added or removed a component after receiving an aircraft such that the drawings generated by the aircraft manufacturer are otherwise outdated since they would include the added or removed component. In contrast, neither *Boose et al.* nor *Baum et al.* teaches or suggests the addition or removal of a component and the re-generation of a diagram as set forth by these dependent claims.

Dependent Claims 16-19, 34-37 and 51-54 are directed to a request for the subset of components to be those included in either a repair log or a maintenance procedure. While *Boose et al.* does note that aircraft require extensive maintenance documentation, neither *Boose et al.* nor *Baum et al.* teaches or suggests a request for a subset of components to include those in a repair log or a maintenance procedure and to then generate a diagram of the subset of components including those in a repair log or maintenance procedure as recited by dependent Claims 16, 17, 34, 35, 51 and 52.

Additionally, new dependent Claims 56, 58 and 60 describe a technique for automatically selecting portions of the connectivity data by: (i) for an initial component in the subset of components, identifying another component connected to the initial component based upon the connectivity data, (ii) adding the other component to the subset of components; and repeating the identifying and adding steps with the other component being the initial component. As set forth

by new dependent Claims 57, 59 and 61, the process may be terminated upon the satisfaction of a predetermined condition, such as the attempted inclusion of a component that is already in the subset of components. Neither *Boose et al.* nor *Baum et al.* teaches or suggests the techniques for automatically selecting portions of the connectivity data set forth by new dependent Claims 56-61.

For each of the foregoing reasons, at least the dependent claims identified above include additional recitations that are also not taught or suggested by the cited references, taken either individually or in combination, and, as such, are further patentably distinct from the cited references. As noted above, the Official Action does not cite to either *Baum et al.* or *Boose et al.* in conjunction with a rejection of several of the dependent claims and, instead, merely alleges that one skilled in the art would find the additional recitation introduced by the dependent claim to be obvious. To the extent these rejections are premised upon Official Notice, such reliance is seasonably challenged and the Examiner is respectfully requested to identify and cite to a reference if these rejections are to be maintained.
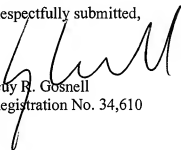
### CONCLUSIONS

In view of the amendments to the claims and the foregoing remarks, it is respectfully submitted that all of the claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

Guy R. Gosnell
Registration No. 34,610

Customer No. 000067141
**ALSTON & BIRD LLP**
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE
UNITED STATES PATENT & TRADEMARK OFFICE ON April 9, 2008 by Gwen Frickhoeffer.